

# CONSTRUCTION FATALITY DIGEST

QUARTERLY REPORT

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*“All types of falls (roof, ladder, structure, opening, etc.) accounted for 37.8% (56 events) in the third quarter of 2018”*

## Roof Falls Decrease from Previous Quarter

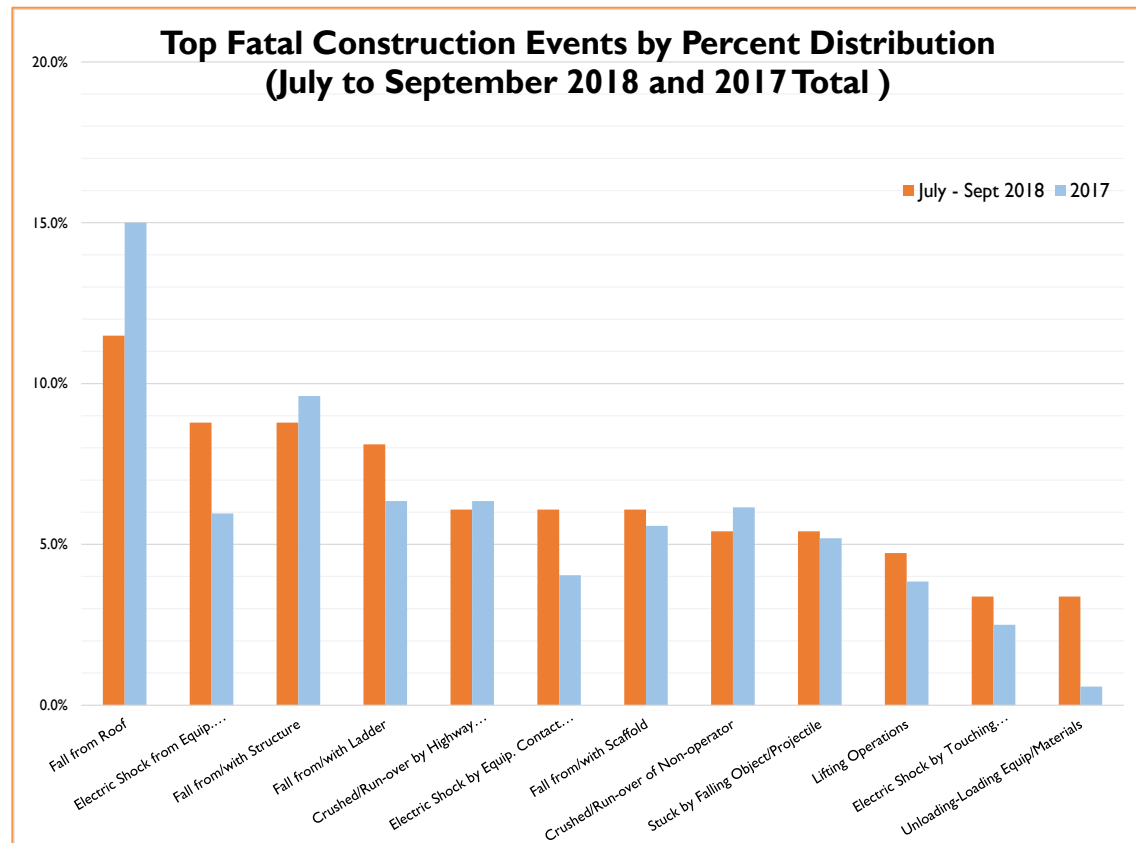
For the third quarter of 2018, CIRPC received 148 reports of fatal events in construction (includes Federal OSHA and State Plan states). For the most part the pattern of causes remained similar to the results reported for the previous calendar year (2017).

“Fall from Roof” led all categories with 17 events (11.5%) of the 148 events. This is over a 7% decrease from the first quarter and over 2% from the previous quarter. For all of 2017 “Fall from Roof” totaled 78 events (15.0%).

“Electric Shock from Equipment/Tool Usage” and “Fall from/with Structure” were tied for second place as leading causes each with 13 events (8.8%) followed by “Fall from/with Ladder” with 12 events (8.1%).

There were two additional notable shifts (other than “Fall from Roof”). “Crushed/Run-over of Operator” decreased from 6.2% to 2.7% for the current quarter. “Fall from/with Collapse of Structure” increased from 5.5% (in the previous quarter) to 8.8% for the third quarter.

All types of falls (roof, ladder, structure, opening, etc.) accounted for 37.8% (56 events) in the third quarter of 2018, which is similar to the previous quarter (54 events, 37.2%). The 2017 total amounted to 43.5% (226 events).



## Regional Breakdown

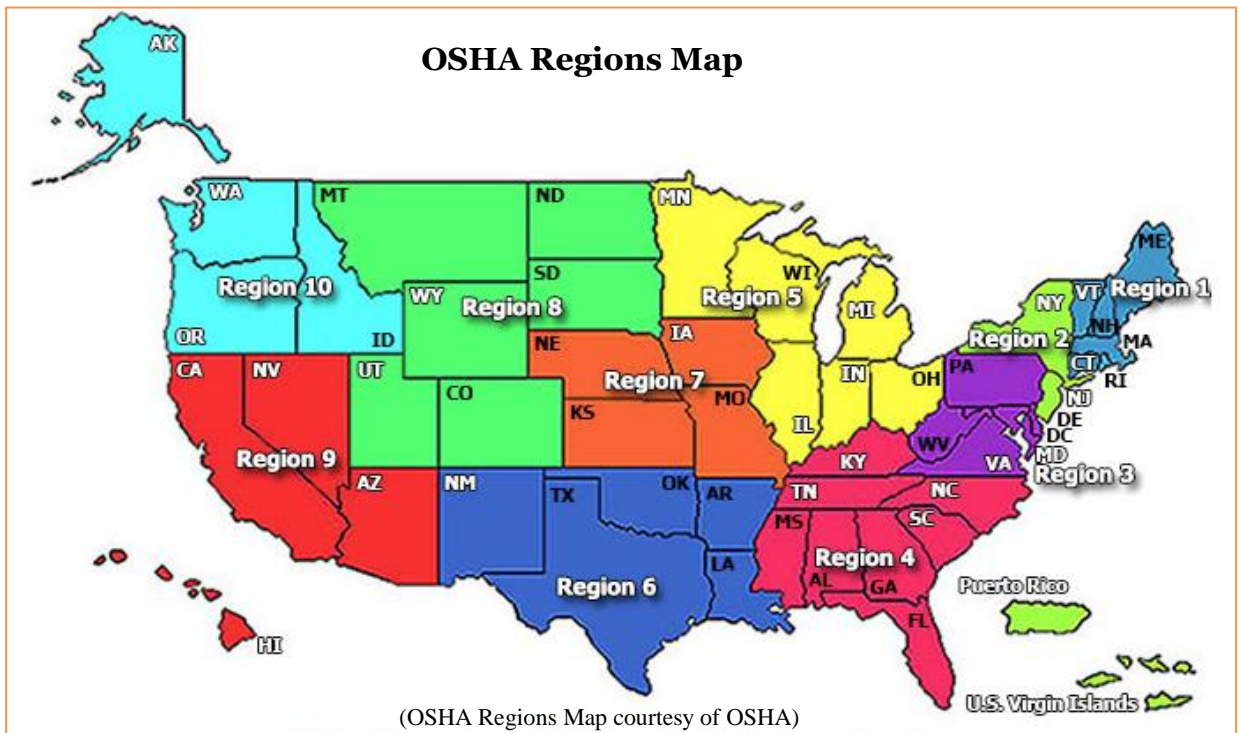
Of the 148 events reported for the third quarter of 2018, 25.0% came from Region 4 (37 events), 16.9% (25 events) came from Region 5, and 13.5% (20 events) from Region 9. Regions 4, 5, and 6 accounted for over 50% of the total.

Of these, 58.1% (86 events) were reported from Federal OSHA states, while 41.9% (62 events) transpired in State Plan states.

The breakdown by state revealed California with the greatest number of events with 18 (12.2%), followed by Florida with 16 (10.8%) and Texas with 12 (8.1%).

### Fatal Events Reported by OSHA Region

July to September 2018		
Region	# of Cases	Percent
1	8	5.4%
2	7	4.7%
3	15	10.1%
4	37	25.0%
5	25	16.9%
6	16	10.8%
7	12	8.1%
8	4	2.7%
9	20	13.5%
10	4	2.7%
Total	148	100.0%



## Fatal Events by NAICS Code

A breakdown of top reported fatal events by NAICS code of the employing firm shows “Highway, Street, and Bridge Construction” contractors at the top with 14.2% (21 events) of the total events. Other top codes are “Roofing Contractors” with 13.5% (20 events) followed by “Electrical Contractors” with 9.5% (14 events).

In the previous quarter “Highway, Street, and Bridge Construction” contractors reported 12 events (8.3%) while “Roofing Contractors” reported only 14 events (16.1%). “Electrical Contractors” doubled the previous quarter’s reported events (7 events, 4.8%).

Fatal Events by NAICS Code			
Code	Description	# of Cases	Percent
237310	Highway, Street, and Bridge Construction	21	14.2%
238160	Roofing Contractors	20	13.5%
238210	Electrical Contractors	14	9.5%
238910	Site Preparation Contractors	10	6.8%
236118	Residential Remodelers	8	5.4%
238140	Masonry Contractors	8	5.4%
238990	All Other Specialty Trade Contractors	8	5.4%
237110	Water and Sewer Line and Related Structures Construction	7	4.7%
238220	Plumbing, Heating, and Air-Conditioning Contractors	6	4.1%
238190	Other Foundation, Structure, and Building Exterior Contractors	5	3.4%
238320	Painting and Wall Covering Contractors	5	3.4%
236115	New Single-Family Housing Construction	4	2.7%
236220	Commercial and Institutional Building Construction	4	2.7%
238120	Structural Steel and Precast Concrete Contractors	4	2.7%
238170	Siding Contractors	4	2.7%
236116	New Multifamily Housing Construction	3	2.0%
236210	Industrial Building Construction	3	2.0%
237130	Power and Communication Line and Related Structures Construction	3	2.0%
237990	Other Heavy and Civil Engineering	3	2.0%
238110	Poured Concrete Foundation and Structure Contractors	3	2.0%
238130	Framing Contractors	3	2.0%
238310	Drywall and Insulation Contractors	1	0.7%
238330	Flooring Contractors	1	0.7%
		148	100.0%



## Top Construction Standard Violations During 2018

For the 380 fatal events for 2018, 164 case files reported a total of 563 violations of OSHA standards. Since inspectors have up to six months to issue citations on a fatality it is very likely that additional citations will be forthcoming.

The violations and their frequencies are listed in the table below. The average number of violations per case with citations issued was 3.43. For the three previous calendar years, 2015, 2016, and 2017 the average number of violations per case was 3.24, 3.43, and 3.36 respectively.

The “Fall Protection” standard is the top violation for the year-to-date with 45 occurrences. The “Scaffolding” standard was cited 38 times followed by “Reporting Fatalities, Hospitalizations, Amputations, and Eye Loss” and “Safety Training and Education” each with 29 occurrences.

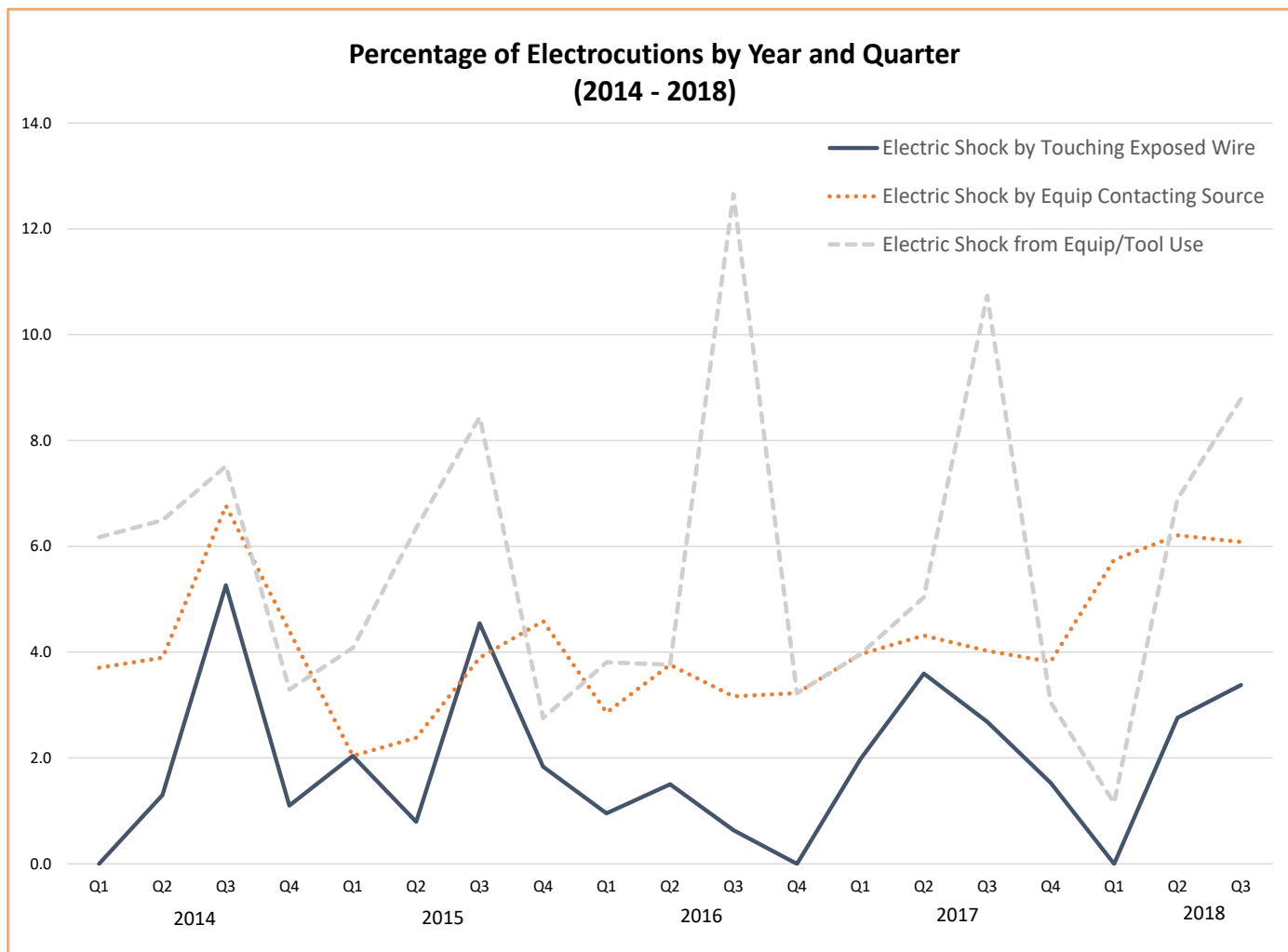
When comparing the January to September 2018 calendar year violations with OSHA’s top standards violated in Fiscal Year 2018 (per [www.osha.gov](http://www.osha.gov)), there are many similarities. “Fall Protection”, “Hazard Communication”, “Fall Protection Training”, “Ladders”, and “Scaffolding” appear in the top standards violated on both CIRPC’s and OSHA’s list.

Top OSHA Standard Violations Reported (January - September 2018)			
Rank	Std #	Description	# of Occurrences
1	1926.501	Fall Protection	45
2	1926.451	Scaffolding	38
T3	1904.39	Reporting Fatalities, Hosp., Amputations, and Eye Loss	29
T3	1926.21	Safety Training and Education	29
5	1926.503	Fall Protection Training	23
T6	1926.20	General Safety & Health Provisions	22
T6	5a1	General Duty Clause	22
8	1910.1200	Hazard Communication	17
T9	1926.416	Electrical, General Requirements	14
T9	1926.454	Scaffold Training	14
T9	1926.502	Fall Protection Systems Criteria and Practices	14
T9	1926.651	Excavation	14
13	1926.1060	Stairways and Ladders - Training Requirements	10
14	1926.1053	Ladders	9

## Fatality Trends: Seasonal Effect on Electrocutions

There is a seasonal effect on electrocutions in the construction industry. The OSHA reported events clearly shows an increase in the percentage of electrocutions from installing equipment or (electrical) tool usage in the summer months (July, August, and September). The other two electrical fatal causes (touching exposed wire and equipment contacting powerline) also exhibited seasonal patterns, but of a more modest extent.

One theory on why this may occur comes from Allison Taylor's "Fatal Occupational Electrocutions in the United States" paper from *Injury Prevention*. "A plausible explanation presented by one author for this widely reported drop in electrocution deaths during the winter months is that there is reduced outdoor activity and use of heavier clothing, gloves and boots. Workers are also more susceptible to electrocution during the summer, because during hot, humid weather the skin is more likely to be moist, offering less resistance to electric current."



## Summary of Fatal Events

Below is a random selection of 37 fatal event summaries from the 148 cases reported for the quarter. These narratives are taken directly from the reports filed by the OSHA's Certified Safety and Health Officials (CSHOs) with only minor editing.

### CATEGORY: ROOF FALLS

Inspection Number: 1377565

Employee was performing installation of drip edge from the roof of a 3 story apartment building. The employee was preparing to come down from roof to move a lull used for debris; he unhooked himself from his lanyard and apparently slipped and fell from the roof.

Inspection Number: 1368664

During roofing activities, an employee placed his foot on a plastic dome covered skylight to tie his shoe. During the motion of bending over to tie the shoe, the plastic dome cracked and the employee fell through the skylight, falling about 21 feet.

Inspection Number: 1366346

Employee fell through a skylight, with a fall distance of 17 feet onto concrete.

Inspection Number: 1379247

The worker and the crew removed the existing shingles and skylights the week before and covered them with felt paper because of lack of materials and rain. The day of the incident he was preparing the roof and stepped through the removed skylight opening, which was covered only with felt paper. He fell approximately 23 feet to concrete floor.

Inspection Number: 1372454

A 34 year old roofer had completed re-roofing a two-story house (3:12 pitched roof) when he fell 24 feet to the ground. He hit his head on the concrete resulting in a fatal head injury. He had been working for the company for about 4 years.

Inspection Number: 1366197

An employee engaged in roofing operations took a step backwards into an unguarded skylight, broke through the dome and fell 24 feet to the concrete floor of the warehouse below.

Inspection Number: 1359255

Employee was performing roofing activities when he fell through a skylight to the cement flooring about 70 feet below.

**CATEGORY: OTHER FALL EVENTS**

Inspection Number: 1364574

The employee was in the process of hanging wallpaper. A co-worker heard a loud bang, and then found the employee on the floor in an adjacent room. He was unresponsive at the time. The employee was pronounced deceased at a local hospital. There were no witnesses to his fall.

Inspection Number: 1375036

An employee fell approximately 7 feet in elevation while working from a step stool located on the platform of a mobile scaffold system. The step stool shifted and became displaced causing the employee to lose his balance and fall to the concrete floor below.

Inspection Number: 1369237

Employee 1 and Employee 2 were working from a swing stage scaffold to perform masonry repair work on the window openings of a 4 story building. One end of the scaffold slid down causing the suspended platform to become tilted. Employee 1 fell approximately 3 stories and struck the ground below while Employee 2 was suspended from his harness and lifeline. Employee 1 suffered fatal traumatic injuries. Employee 2 was not seriously injured.

Inspection Number: 1364742

Three employees were installing Tyvek Home Wrap to the north side of a newly built residential dwelling from a pump jack scaffolding. The scaffolding had two work platforms placed between three poles. One of the platforms came off of the support bracket and two of the employees fell approximately 24 feet. One employee was pronounced dead at the scene and the second employee suffered internal bruising.

Inspection Number: 1363429

An employee was working from an aerial lift to replace lighting components when he fell from the lift.

Inspection Number: 1358800

During bridge construction an employee stepped into a hole on the bridge and fell approximately 25 feet to the ground below. The plywood which was previously covering the hole had been temporarily removed.

**CATEGORY: ELECTROCUTIONS**

Inspection Number: 1385843

An employee was digging up a tree with a skid steer, a loose cable was in the way of the tree removal. The company owner went to remove the cable. The cable was energized, but the owner did not know this. He bent down and grabbed the cable and was electrocuted.



**CATEGORY: ELECTROCUTIONS (Continued)**

Inspection Number: 1358064

Crane operator allowed the load line to get close to the power line while the rigger had both hands on the load line. The load line came in contact with an overhead power line electrocuting the rigger.

Inspection Number: 1363455

The victim was carrying a ladder when he stepped on a nail. This caused him to jump/jerk and the ladder he was carrying to contact the overhead electrical line. The victim was electrocuted.

Inspection Number: 1363588

In anticipation of installing rails that would have solar pans mounted on them an employee was assembling the aluminum railings on the ground. After assembling the rail he stood it up vertically and it made contact with a 7000 volt power distribution circuit.

Inspection Number: 1358013

Employees were installing a new powerline pole next to an old pole that was still carrying energized powerlines. The new pole was being held in the air at an inclined angle by a boom hoist. An employee had grabbed the lower end of the pole and accidentally moved the pole into an energized line.

Inspection Number: 1360057

Two employees were installing electrical lighting fixtures inside an elementary school being remodeled. One of the employees was working alone in a hall when a subcontractor employee that was working in a room next to the hall, heard a noise. He walked to the hall and observed that the employee was being electrocuted. He then kicked the ladder and the employee fell to the floor. The employee died from his injuries.

Inspection Number: 1357460

Employee was working at a residential site hooking up the electrical service. Employee was found deceased next to green pedestal electrical box. The cover was off the electrical box and employee appeared to have been working on it.

**CATEGORY: STRUCK BY, RUN OVER, CRUSHED BY  
OPERATING CONSTRUCTION EQUIPMENT/VEHICLE**

Inspection Number: 1364441

The victim was performing flagging duties in front of a construction site on a side street. At some point during this process the operator of the forklift lost sight of the victim and struck and ran over him with the forklift.

**CATEGORY: STRUCK BY, RUN OVER, CRUSHED BY  
OPERATING CONSTRUCTION EQUIPMENT/VEHICLE  
(Continued)**

Inspection Number: 1388383

The victim suffered fatal injury when a concrete pump truck's outriggers sunk in unstable ground and the truck tipped over crushing him between the wall being poured and the fully extended boom.

Inspection Number: 1365565

Employee was moving a crane over to a new site. As he moved the crane up the incline from a field, the front of the crane sank into the side of the incline and causing it to tip forward. The counter weights came off the back of the crane and smashed into the crane cab.

**CATEGORY: OTHER FATALITY CAUSES**

Inspection Number: 1356170

Three employees replacing a sewer line in a trench were overcome by hydrogen sulfide and methane gas. One employee died and two others were admitted to the hospital for treatment.

Inspection Number: 1385168

The employee was grinding on the outside of a 7,000 gallon tank previously containing sulfuric acid to remove flanges when the tank exploded.

Inspection Number: 1387382

The victim was assigned to the bush hog tractor to begin cutting down high vegetation on the land to be cleared. As he was backing up the bush hog and looking over his right shoulder, the blades of the mower struck against an old propane cylinder on the vacant property. The cylinder exploded causing 2nd degree burns to about 30% of his body and fatal injuries.

Inspection Number: 1364930

A bulldozer operator was involved in wild fire "burnover". While operating along the fire line the bulldozer and operator was overtaken by the fire and he was fatally burned.

Inspection Number: 1369791

Employee was involved in dredging activities near an interstate and a river and presented signs of heat stress. Employee was taken to the shore where an ambulance had arrived. The employee died on the way to the hospital.

Inspection Number: 1358552

Employees were dismantling a 2 point suspended scaffold outrigger support from the roof top of a building, a junior I-beam fell and struck an employee below.

**CATEGORY: OTHER FATALITY CAUSES (Continued)**

Inspection Number: 1383576

A 53-year-old man was hit by lumber that had fallen off a skid steer. The investigation revealed that several straps on the bundle, containing over 100 boards, failed while being lifted by a skid steer. The victim was struck by the boards in the head and chest.

Inspection Number: 1370322

An excavation contractor was performing trenching work to install storm sewer structures and piping. A portion of the benched trench wall sheared off and fatally struck the victim working in the trench laying pipe.

Inspection Number: 1364239

The crew was installing sewer pipeline in 10 foot deep by 11 foot wide trench. The trench collapsed trapping the victim and fatally injuring him.

Inspection Number: 1386354

A truck driver arrived at the site to delivery twelve 20" diameter steel pipes. While waiting for a forklift, the driver started unstrapping the load of pipes. When the last strap at the middle of the truck was released the top pipe rolled off the truck and struck the truck driver. Employee was pronounced dead at the scene.

Inspection Number: 1370536

Employee was in the process of moving a Grizzly Screen weighing 12,500 pounds using a front end loader with a bucket attachment. The victim exited the cab of the vehicle to speak with another employee. The two employees engaged in a conversation directly in front of the load holding the Grizzly Screen. The Grizzly Screen tipped forward off of the bucket striking the operator and crushing him.

Inspection Number: 1367407

A project manager was hit by a flying piece of concrete debris when the building was demolished.

Inspection Number: 1365428

The employee was loading a "Lin Ward Machine" into the back of a van, when he became pinned between the top of the machine and the ceiling of the van. The employee suffered a cardiac artery injury, four broken ribs and was unconscious. The employee was transported to the hospital, where he later passed away.

Inspection Number: 1356117

Two employees were conducting residential roofing work. A lightning strike occurred. Employee 1 fell from the roof to a deck 10 feet below. Employee 2 felt a "blow" to his head and fell, catching himself on the edge of the roof. Employee 1 was fatally injured in his fall. Employee 2 was transported to the hospital.

## OSHA Launches Program to Target High Injury and Illness Rates

OSHA is initiating the Site-Specific Targeting Program to target workplaces with high injury rates for inspection. Using injury and illness information electronically submitted by employers for calendar year 2016, OSHA will inspect establishments that should have provided 300A data, but did not. This program helps OSHA ensure that employers provide safe and healthful workplaces by directing enforcement resources to those workplaces with the highest rates of injuries and illnesses. For details on the program, and recordkeeping and reporting requirements visit [www.osha.gov](http://www.osha.gov).



(Information courtesy of OSHA and OSHA Quicknotes)

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We would like to thank OSHA's Dave Schmidt for help in obtaining the data used in this newsletter. Comments and suggestions can be directed to John Wagner ([jpwagner@utk.edu](mailto:jpwagner@utk.edu)) as we work together to contribute to a safer construction workplace.